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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,955	12/11/2003	Tasso R. Sales	SP02-268	8150

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EXAMINER	
CONSILVIO, MARK J	

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H·A

Office Action Summary	Application No.	Applicant(s)	
	10/733,955	SALES, TASSO R.	
	Examiner	Art Unit	
	Mark Consilvio	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21 and 23* is/are rejected.

7)☒ Claim(s) *22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

Claims 1-22 were previously rejected and claims 1, 2, 4-6, 17-20 are newly amended. Claim 11 has been cancelled and claim 23 is newly added. Claims 1-23 are currently pending.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Response to Arguments

Applicant's arguments filed 10/11/2005 have been fully considered but they are not fully persuasive. The examiner respectfully disagrees that the Kurtz reference does not teach or suggest the newly added limitations. As noted in the rejection below, the Kurtz reference does provide an adequate teaching as to the spacing of the wire grids. A pitch approximate to $\Lambda \sim \lambda/5$ does satisfy the required relation to avoid resonances.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 23 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U. S. Patent No. 6,813,077. Although the conflicting claims are not identical, they are not patentably distinct from each other because no claimed structure distinguishes the pending claims from the patented claims.

Claim 1 of Patent '077 provides all the structure necessary to meet the limitations of claim 23 including the substrate and the regularly spaced metal and dielectric stacked layers understood to be formed by the method of manufacturing a wire grid polarizer. It is noted that the functional language of claim 23 is provided by claim 1 of Patent '077 or inherent to the product of its method. Specifically, though claim 1 of Patent '077 is silent to suppression of higher diffraction orders, this feature is inherent to wire grid produced by this method.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 23 is rejected under 35 U.S.C. 102(e) as being anticipated by Kurtz et al. (US Patent No. 6,532,111) (herein Kurtz).

With respect to claim 23, Kurtz discloses a grid polarizer comprising: a substrate (305); and a plurality of stacked metal and dielectric layers (324, 322, 342), having a width w, disposed on the substrate (305) and forming a parallel grid (310) of stacked layers, the stacked layers (324, 322, 342) spaced apart to form a repetition space between the stacked layers, P, such that no diffraction orders are allowed to propagate except the zero order resulting in a grid polarizer that is capable of transmitting substantially all illumination of a given polarization while suppressing at least of portion of the illumination reflected due to an orthogonal polarization component (fig. 5d). While this last feature is not explicitly stated, one of ordinary skill can understand that this feature is inherent to the structure disclosed. Since the repetition space between the stacked layers, or pitch, is small enough (i.e. less than the wavelength of incident light), then the grid will suppress higher diffraction orders. See, for example, cols. 1-3.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurtz et al. (US Patent No. 6,532,111).

With respect to claim 1, Kurtz discloses a grid polarizer comprising: a substrate (305); and a plurality of stacked metal and dielectric layers (324, 322, 342), having a width w, disposed on the substrate (305) and forming a parallel grid (310) of stacked layers, the stacked layers (324, 322, 342) spaced apart to form a repetition space between the stacked layers, P, such that no diffraction orders are allowed to propagate except the zero order resulting in a grid polarizer that is capable of transmitting substantially all illumination of a given polarization while suppressing at least of portion of the illumination reflected due to an orthogonal polarization component (fig. 5d). While this last feature is not explicitly stated, one of ordinary skill can understand that this feature is inherent to the structure disclosed. Since the repetition space between the stacked layers, or pitch, is small enough (i.e. less than the wavelength of incident light), then the grid will suppress higher diffraction orders. See, for example, cols. 1-3. Also, though the relation, $\Lambda < \frac{\lambda}{n_t - n_i \sin\theta}$, is not expressly disclosed, Kurtz does generally teach a wire grid polarizer that satisfies this relation. Evidence can be found in col. 1 (which details when higher diffraction orders will occur, i.e. approx. $2\lambda < \Lambda < \lambda/2$) and col. 8, lines 12-20 (which teaches $\Lambda \sim \lambda/5$ for the wire grid above).

With respect to claim 2, Kurtz discloses the device is capable of transmitting substantially all of the illumination of a given polarization while suppressing substantially all of the illumination reflected due to an orthogonal polarization component (col. 13, lines 54-65).

With respect to claim 3, Kurtz discloses the device comprises first (324), second (342) and third layers (322) (fig. 5d).

With respect to claim 4, Kurtz discloses the first layer (324) comprises a metal and is adjacent the substrate (305), the second layer (342) comprises a dielectric or semiconductor and

is adjacent the first layer (324), and the third layer (322) comprises a metal and is adjacent the second layer (342) (fig. 5d).

With respect to claim 5, Kurtz discloses the first and third layers comprise either gold or alumina and the second layer comprises either Si or SiO_2 (col. 14, lines 39-42).

With respect to claim 6, Kurtz discloses the thickness of the first layer is thicker than the penetration depth of the metal comprising the first layer such that the first layer reflects substantially all incident light polarized in a direction parallel to the orientation of the grid (col. 8, line 35 – col. 9, line 46).

With respect to claim 7, the thickness of the third layer has a thickness operable to allow transmission into the second layer (col. 8, line 35 – col. 9, line 46).

With respect to claim 8, Kurtz discloses the thickness of the third layer is less than or equal to 100nm (col. 13, lines 37-42).

With respect to claims 9, 10, and 12-14, Kurtz discloses or suggests all the limitations of claims 1, 3, 5 and 7 as stated supra. Though not all the limitations of claims 9-14 are expressly disclosed, Kurtz does teach values with the some of the required ranges and a general desirability to adjust the various parameters of the stacked layers to improve performance level. Therefore, absent a showing of criticality, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of Kurtz to the desired ranges and specifications to optimize performance.

With respect to claim 15, Kurtz discloses each of the stacked layers have a substantially equal width (fig. 5d).

With respect to claim 16, Kurtz discloses or suggests all the limitations of claims 1, 3, 4, 7 and 13 as stated supra. Though Kurtz does not expressly disclose each of the stacked layers has a varying width, such structures are well known in the art (also, see col. 6, lines 36-39). Therefore, absent a showing of criticality, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of Kurtz to vary the width of the stacked structures to optimize performance.

With respect to claim 18-20, Kurtz discloses or suggests all the limitations of claims 1 and 3 as stated supra. Though Kurtz is silent to the substrate including etched regions, etching is a well-known method of forming a grid polarizer. It is noted that the method of manufacturing a product does not distinguish over the prior art unless the final product distinguishes over the prior art. When the reference teaches a product that appears to be the same as, or an obvious variant of, the product set forth in a product-by-process claim although produced by a different process, the claim is unpatentable even though the prior product was made by a different process. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP §2113.

With respect to claim 21, Kurtz discloses that the transmission intensity of the reflection coefficient is less than 1 (col. 2, lines 1-20).

Allowable Subject Matter

Claim 22 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Though the prior art discloses or suggests all the limitations of claim 1, the prior art of record fails to teach or suggest the aforementioned combination further comprising the transmission intensity as represented by the following equation $I_r = |E_r|^2 = \frac{(r+1-a)^2 - 4r(1-a)\sin^2\frac{1}{2}\varphi}{(r+1)^2 - 4r\sin^2\frac{1}{2}\varphi}$ is equal to 0, wherein E_r represents the total reflected field, a represents the absorption experienced by the incident illumination upon interaction with the interface of the first metal layer and the dielectric layer and r represents the reflection coefficient.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Consilvio whose telephone number is (571) 272-2453. The examiner can normally be reached on Monday thru Friday, 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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